Market-Oriented Agriculture in Nineteenth Century San Francisco

KHALED BLOOM*

HILLY AND CHILLY as it is, and dominated by the commercial and industrial functions of the Pacific Slope's most crowded city, the tip of the San Francisco peninsula has never been accorded much notice as a farming district, not even in the day of intensive agriculture's highest development there. *Pacific Rural Press*, California's leading farm journal in the nineteenth century, consistently omitted mention of San Francisco County in its regular local interest columns, while the state surveyor general seldom bothered to publish the basic figures on San Francisco's agricultural output when compiling his yearly statistical reports on the local economies of California's counties. Even the agents of the U.S. Census, upon whose 1880 field work this research is substantially based, were more apt to write off the city's agricultural scene than to describe its unique features. E. W. Hilgard noted in 1880 that "the county is not an agricultural one, and very little of its land is under cultivation (Hilgard 1880, p. 109), and in 1890 F. H. Newell superficially remarked that "agriculture can hardly be said to be carried on within the county" (Newell, 1894, p. 78).

*Mr. Bloom is a postgraduate student at California State College, Stanislaus, and a practicing farmer.

The comparative statistics compiled by the census agents contradict any opinions they formed offhand. Indeed, it is remarkable how San Francisco County, physically the most poorly endowed of all the California counties, was put to such highly productive account by farmers in the nineteenth century, and so maintained into the twentieth, until the small amount of agricultural land was at last overrun by urban expansion. In its outstanding speciality, the production of fresh market milk, San Francisco County stood first in the state, and first in the West, until 1900. In 1880 the city's dairies accounted for more than 44 percent of California's milk production. In dollar value of market vegetable production, San Francisco County was outrivaled only by a few sections of the Santa Clara Valley, a district infinitely better favored by nature. And even with regard to percentage of total land area commited to agricultural use, "urban" San Francisco County, with 18 percent of its territory given over to farms in 1880, compared rather well with a number of the state's more recognizable "farm" counties: with Monterey (17%), for instance, or with Fresno (13%).

In the following sections, the major types of farming surrounding the San Francisco of one hundred years ago are described. A variety of historical sources were used to identify the types of farming and to explain their localization. The detailed reconstructions in the accompanying maps involve the splicing of material from two sources in particular, city directories and the U.S. Census. Enumerated facts about individual farm businesses were obtained from the Tenth U.S. Census (June 1880), while details of specific location were obtained from city directories of the period. Individual farm data from the agricultural schedules were reevaluated, regrouped, and tabulated for generalization and for discussion of farming types and land use characteristics. The features and locales of San Francisco County are shown in Figure 1.

Overview: The Land Use Spectrum in 1880

If the metropolis of San Francisco had sprung up in a district of uniform soil fertility, the outer precincts of the city might have embodied the classic von Thunen pattern of agricultural land use

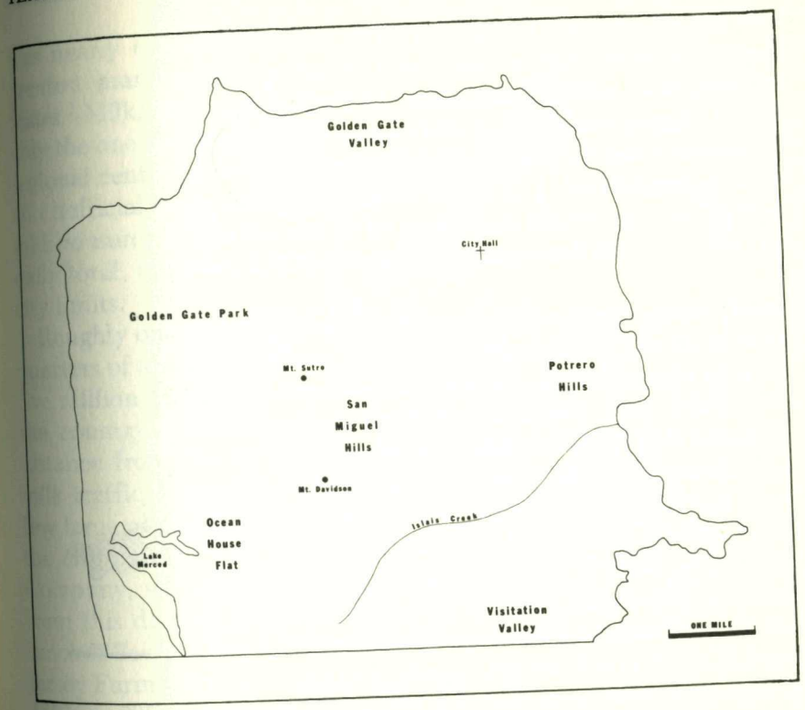

Figure 1. San Francisco County: features and locales.

concentrically belted in intensity according to distance from a central urban market (von Thunen 1966). San Francisco's populated core in the northeast of the county was diametrically removed from the county's most productive agricultural lands, however, with several miles of barren dunes and hills posed between (Fig. 2).

While the powerful economic draw of the great city remained in place, that surrounding arrangement of natural features skewed the ideal symmetry of the von Thunen scheme without deranging the basic logic of the theory's land use hierarchy. This made for an abrupt and peculiar diffraction of farming types, leaving the lands of greatest natural merit to be rather indifferently used under a mixed-farming regime, while, under direct stimulus of an adjacent urban market, the most unlikely sandlots nearest the town were colonized by dairymen in a most remarkable way.

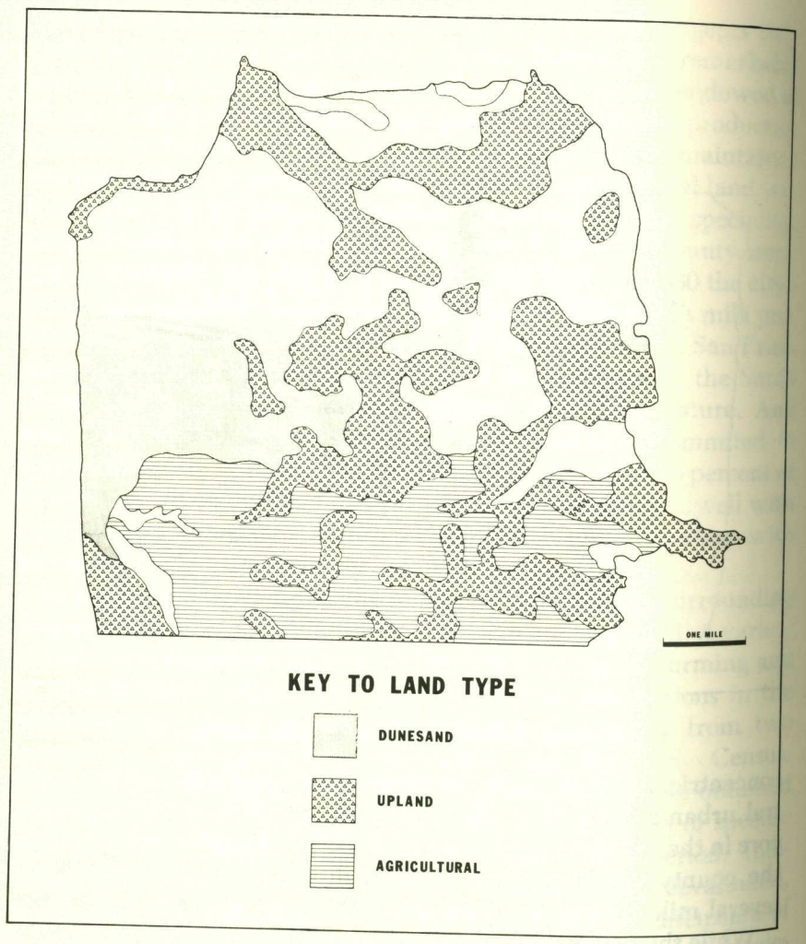

Figure 2. Generalized soil and land type map of San Francisco County (adapted from Holmes and Nelson, 1917).

Dairies: Significance and Distribution

Production of fresh market milk made San Francisco County's agricultural standing especially notable among the counties of California. That preeminence was entirely a response to the opportunities for local supply. By 1880 San Francisco's urban population

was nearly one-quarter of a million, making the city by far the greatest market for perishable foodstuffs in the western United States.[1] Milk, the most delicate of staple commodities, was predictably the one whose source of supply was most closely pegged to the regional center of demand. In *The Milk Supply of San Francisco*,[2] an unofficial study conducted about 1886, E. J. Swift figured daily milk consumption in the city to be more than 22,000 gallons; of that daily total, not even 4,000 gallons were imported from outside the city limits.

Roughly one-eighth of San Francisco's milk supply—some three-quarters of a million gallons in 1880, supplementing the more than five million gallons produced within the ciy—was brought in from the country depots situated along the Old San Jose' Road to a distance from the city not exceeding fifteen miles. This country-milk traffic was for the most part concentrated in the hands of a few large pastoral estates, very different in mode of operation from the city dairies. The largest of these establishments, Jersey Farm Company, which by itself accounted for nearly a third of the milk from this district, reported 800 cows in 1880, supported on three ranches comprising 2,700 acres of improved pasture. In 1881 the Jersey Farm Company was described in *Pacific Rural Press* (2 April 1881, p. 235) as perhaps the largest and best appointed of its type in the nation.

The distribution of milk ranches within the county, plotted on the accompanying map (Fig. 3), shows the intense magnetic effect of concentrated urban demand upon the supply of such a perishable commodity. The map shows the location of 106 dairies with a total of 4,324 cows. This includes all commerical herds (of five or more cows) enumerated by census personnel in 1880. City directories were used to obtain the address of each establishment. Undoubtedly, some minor dairies went uncounted at that time, too small to be reported as "farms" or hidden from sight by sheds or high fences, but there is no reason to suppose they would have diverged from the pattern represented by the others.

You will immediately notice the almost continous "halo" pattern created by these 106 dairies that are gathered around the built-up area without reference to qualities of the soil, or rather to the lack

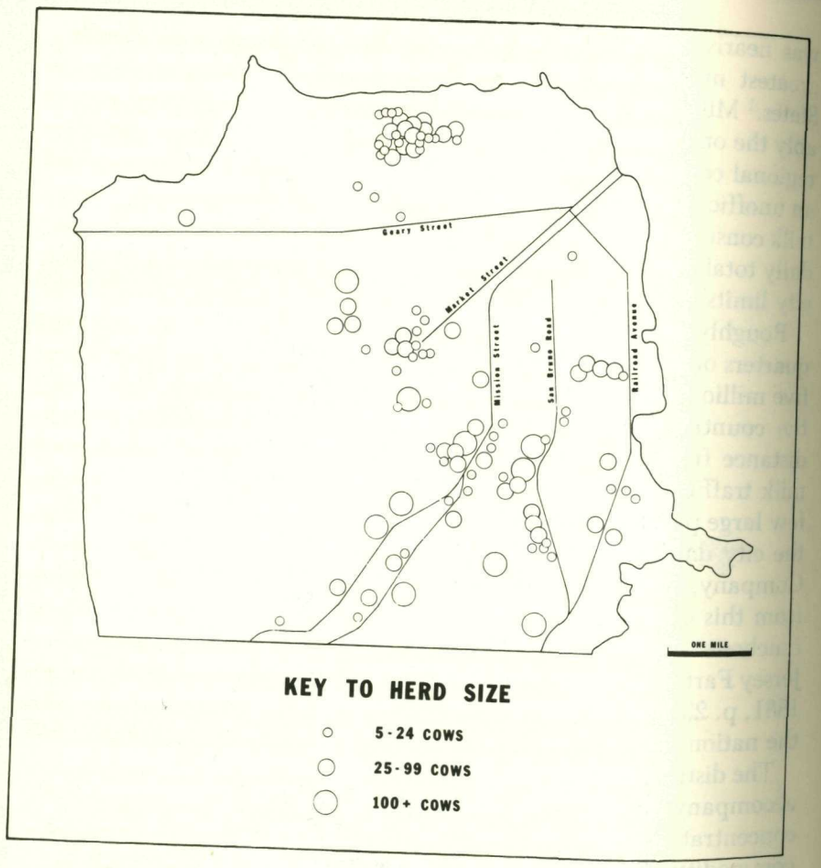

Figure 3. Commercial dairies of San Francisco County, 1880.

of any workable soil at all (Figs. 2 and 3). Just northwest of the city core, among the fifty-vara lots of the Western Addition, the sand-blown Golden Gate Valley (old "Cow Hollow") supported the densest clustering of milk ranches. A lesser concentration was at the head of Market Street in the craggy neighborhood of Corona Heights. The rest were strung along the main roads leading downtown from the south—along Railroad Avenue, with outliers in the Potrero district; along San Bruno Road, with little concentra-

tions around University Mound and Bernal Heights; along Mission Street, with a concentration in Noe Valley; and along the Old San Jose' Road. A closer description of those enterprises will demonstrate a highly creative cultural adjustment to the physical disabilities of the sites chosen, as well as to the exceptionally high level of fixed costs those sites exacted.

Land Requirements of Urban Dairying

As dairymen acknowledged, the locational advantages of huddling close upon the city fringe had some disadvantages to offset them. The dairymen naturally encountered a much closer subdivision of the land and competition with other users of the land (residential, commercial, and industrial). So, by purchase or by rent, they were obliged to absorb much higher land costs. Prices of undeveloped city homestead lots around 1880 were described in a San Francisco real estate circular as ranging upward from one thousand dollars. At the same time, according to the census returns of 1880, prices of improved farmland just to the south in San Mateo County averaged only fifty dollars an acre. San Francisco's urban milk ranchers adapted to their situation by concentrating their herds and intensifying their practices to the point where dairying became detached from agriculture, properly so called, in a way that prefigured the industrialized drylot dairying of modern times.

Swift (1886) noted, "Out of perhaps two hundred dairies only some half a dozen have any range or pasture for their cattle; nearly all are crowded upon small city lots." That statement is substantiated by the census agricultural schedules. Of 106 San Francisco milk ranches visited by the census enumerators in 1880, only thirty-four reported more than one acre covered by their operations; only twenty-two of those claimed more than three acres, and only ten of them reported more than ten acres. The same count revealed that 2,297 cows, more than half of all enumerated, were packed into seventy-two lots of one acre or less. The overall cow:acre ratio at such establishments approached 60:1.

By country dairy standards of the time, congestion must have seemed incredible at some of the biggest drylot operations nearest the town. The Ruhland Brothers corralled 138 cows in a fractional-

acre lot on Stanyan Street, the F. L. Such Company maintained 165 cows in a similar enclosure off Castro Street, and Clifford's Boston Dairy kept 190 cows on a Silver Avenue lot. Cow-crowding of this sort was typical even at dairies established in more open parts of the city; for example, out on Mission near the Five-Mile House the California Dairy Company, largest in the county in terms of numbers, penned its 250 head on just seven acres (Tenth U.S. Census, 1880).

Only a handful of commercial dairies indicated any reliance on extensive pasturing of their cows. One dairyman, for instance, found 200 acres on the fringe of Golden Gate Park for his 30 cows, while another ranged 80 head on 200 acres of hill pasture in an open area of the Potrero district. Off the Old San Jose' Road in the hills east of Mt. Davidson the singularly spacious New York Dairy accommodated 175 cows on 500 acres of fenced grazings. These examples indicate that the native pastures of San Francisco never could have supported enough cows to conveniently furnish a city of this size with its daily supply of fresh milk. The city's self-sufficiency in milk, then, had to depend on feed resources derived from the urban environment itself.

The Problem of Dairy Feeding

Locating themselves in the shadow of manufacturing industry, San Francisco's urban dairymen readily adjusted their business of cow-keeping to the norms of industry and readily used the by-products of industry as well. According to the city assessor's report for 1880, the breweries of San Francisco malted, fermented, and disposed of 23,000 tons of barley in the course of their year's operations. That abundance of spent grain or slops became the characteristic feed of two-thirds of the city's cows, which accounted in turn for three-fifths of the city's milk supply (Swift 1886).

San Francisco's municipal health officer, in his report for fiscal 1875, described some of those "swill-milk" enterprises, probably in Cow Hollow:

> From the large tanks at the distillery the slops are carried in permanent troughs perched upon stilts to a dozen or more different stables, some of which are two blocks distant. [Swift, on the other hand, described the distribution of slops in tank wagons, which was probably the more typical means of conveyance.] The stables are mostly long, low wooden buildings, with two rows of stalls placed so that one row of cows faces the other. A passageway is left between the rows that the animals may the more readily be supplied with hay which is given with the swill. In front of each row of cows is a trough extending the length of the building and connecting with those from the distillery. Some of the stables are kept quite clean and well ventilated; in others the atmosphere is extremely offensive and sickening. The cows are confined most of the time—some, as I was informed, twenty out of twenty-four hours; others, a shorter period.
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> [*Municipal Reports*, 1875]

The swill was recommended because of its cheapness, and this factor alone gave the city milk ranches a cost advantage of 10 to 15 percent over country dairies (Swift 1886). Swift also noted that damaged hay and spoiled or surplus vegetable produce, scavenged from the wharves and waysides, formed a considerable part of many herd rations.

The health officer's report continued:

> The general good appearance of the cows in these establishments is to that extent favorable, and simply shows that their food is not so bad or their confinement so close as in the case of the cows in New York at the time of the Frank Leslie exposure. No stump-tailed or diseased cows were seen. Let it be understood, however, that the difference in the two cases is not in kind but in degree. Efforts are now being made to stop the business, but they will meet with determined opposition. It rests very largely with consumers whether the continued sale of swill milk shall be profitable or otherwise.
>
> [*Municipal Reports*, 1875]

San Francisco's dairymen of 1880 were functioning in an atmosphere of complete laissez-faire—the first public health ordinances touching their operations did not go on the books until 1895. Cow numbers began dropping after 1900 under the accumulating weight of municipal regulations; by 1920 only 254 dairy cows could be discovered in the county, scarcely one-twentieth of their peak number (Parker 1917, pp. 182-184).

Fifty years earlier the farmer-theorist von Thunen had correctly put dairying in the first ring of production around his hypothetical city, justifying this placement simply on the practical problem of handling and shipping fresh milk (von Thunen 1966, p. 9). He did not foresee that dairymen positioned around the city fringe could capitalize on the town and factory refuse as a source of cheap cow feed, enjoying in this way a commensal advantage not unlike the one he allowed his market gardeners, who could capitalize on the manures swept from city streets and stables as a source of cheap fertilizer.

Von Thunen had anticipated the concentration and stall-feeding of milk cows around the fringe of his city, but he visualized the practice only as a means of preserving high-cost grassland from trampling and other wasteful effects of a pasture system. He still assumed, in other words, that meadows and hayfields would be integral features of the suburban dairy complex. In the 1880 agricultural schedules for San Francisco, however, only half a dozen instances could be found of city dairymen cropping land for the support of their cows. In no case could farm-produced fodder have been the sole or even principal support, as the hayfields associated with those dairies totaled only 77 acres. Of course, in that horse-drawn era the regular commercial supply of hay and sack feed to the city from upcountry would have obviated the dairyman's particular problem.

Market Gardens

Farms reporting market garden production are indicated on the land use map (Fig. 4) by small initials. These specialty farms were for the most part localized in the upper valley of Islais Creek (the Excelsior and Outer Mission neighborhoods) where, traveling south from the downtown area, the first sizable coves of arable ground would be encountered in the undeveloped lee of the San Miguel Hills. Immediate access to a main road and track, the Mission Street extension, was undoubtedly regarded by truck farmers as another premium feature of this locale. Visitation Valley, bisected by the county line, supported another important group of farms of this type, while a scattering of garden-truck enterprises occupied sheltered pockets around the city east from Mt. Sutro.

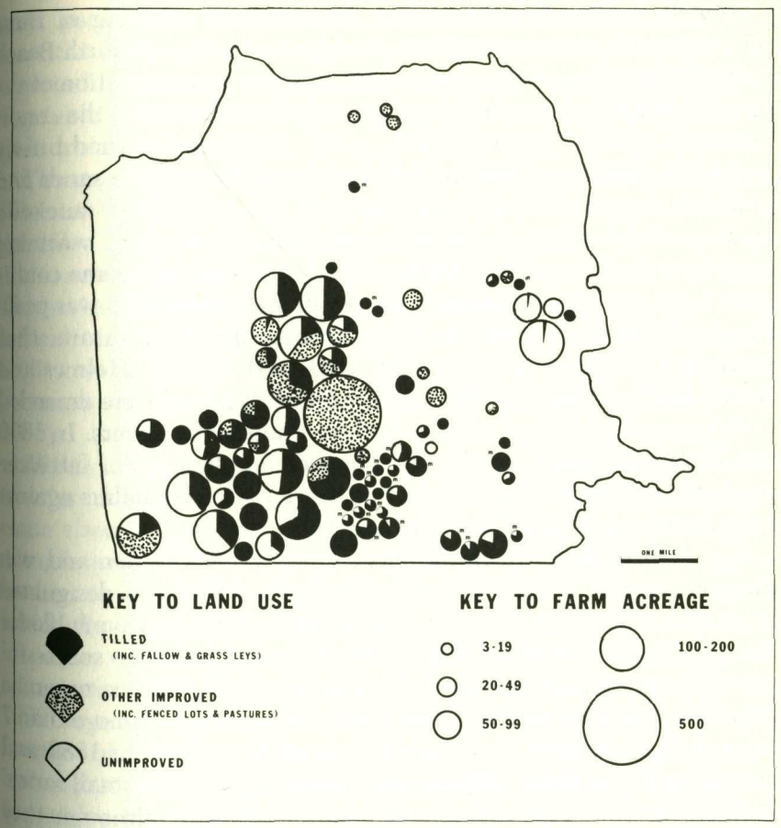

Figure 4. Land utilization on San Francisco County farms, 1880 (m = market gardens).

These little farms are conspicuous on the map (Fig. 4) for their high degree of cultivation. The twenty places of this type averaged 17 acres in size, ranging from 7 to 36 acres; their arable portions averaged 14 acres, ranging from 6 to 30 acres. Some were completely tilled, while others retained a few acres of unimproved grazings, presumably for the support of working stock. Most of them were irrigated, observed F. H. Newell in 1890, by means of windmills or other devices for pumping from wells.

Newell further commented on the intensive working of these rented parcels, whose operators, mainly companies of North Beach Italians, gave "constant care and attention to the cultivation of the ground, raising crop after crop in as rapid succession as the conditions will permit" (Newell 1894, p. 78). Hilgard, too, had briefly noted the practice of continuous cropping. The Antioch sands and sandy loams that constituted the soil base of San Francisco's vigorous truck farming industry had the advantage of warming quickly with the weather. Under almost frost-free maritime conditions, year-round production of temperate zone vegetables was possible despite fogs, breezes, and low average air temperatures that precluded tree and vine crops (Hilgard 1884, p. 109; Holmes and Nelson 1917, p. 73). The deficiencies of the sandy soil were amended with heavy dressings of manure and commercial fertilizers. In 1890 San Francisco farms led the state in their application of fertilizer per acre of improved land, investing more than two dollars against a California average of less than a cent.[3]

A considerable part of the city's fresh vegetable demand was thereby satisfied from within the city itself. The farms designated by small initials (Fig. 4) made approximately 280 acres available for the raising of three or more specialty crops per year.[4] So successful was this specialized, high-input culture, so keen the commercial stimulus, that this modest acreage was made to deliver more than 7 percent of California's commercial vegetable output in 1880 and more than 8 percent in 1890. Another measure of these small farms' productivity may be appreciated in the fact that, although they averaged less than one twenty-fifth the mean size of California farms in 1880, they returned a per-farm income more than 70 percent above the state average.

As the Outer Mission was developed for residential building toward 1900, the immediate "salad shed" of the city edged outward—east to occupy suburban interstices in Portola and Visitation Valleys, west to the open sea-facing flats behind Lake Merced, and south to the Merced Valley (Colma district) in northern San Mateo County (Holmes and Nelson 1917; WPA, 1937). In spite of successive relocations, market gardening in San Francisco seems to have retained its vigor into the first quarter of the twentieth century, pacing city growth until urbanization finally shouldered it from the last suitable soil types. In 1900 more than 500 acres were reported in specialty crops, and per-acre returns on San Francisco vegetable farms remained first in the West, more than double the California average.

The vegetable acreage peaked in the 1920s, exceeding 600 acres. Whereas in 1880 market gardening had claimed only one-fifth of the tilled lands in San Francisco County, by 1920 specialty vegetables accounted for more than four-fifths of the cultivated acreage. This statistic reflects both the general withdrawal of city land from agricultural use in the intervening years and the superior survivability of intensive garden culture in the face of competing demands for land on the city fringe (U.S. Census, 1880, 1900, 1920).

In this latter period, however, the relative economic significance of urban fringe market gardening was steadily eclipsed as advances came about in canning, refrigeration, and rapid freight transport. Also, farmers of the rural counties became aware of greater opportunities in the national market. San Francisco's vegetable crops, which through 1890 had never ranked less than second or third in the state, were surpassed in gross value by those of six California counties in 1900 and by those of twenty-seven counties in 1920. By 1920 vegetable production in the city accounted for just a scant fraction of 1 percent of the state total. To a lesser extent, commercial vegetable farming lingered even into the 1940s as a stop-gap use for undeveloped lands within the city limits, but with the conclusive burst of urban construction in the postwar years the business of market gardening in the city passed into virtual extinction.

Mixed Farms

Small farms with mixed crops, conspicuous in the statewide picture for neither staples nor specialties, dominated Ocean House Flat and the stretches of rolling terrain around Lake Merced that made up the county's main continuous body of decent agricultural land. Some farms of this description also rimmed the near corner of the dunesand waste, occupying vales and footslopes along the west flank of the San Miguel Hills as far up as Laguna Honda and the

vicinity of the old Alms House Tract. Thirty-one such farms occupied 2,270 acres altogether and averaged 73 acres in size. Nine of these farms exceeded 100 acres, but none was larger than 160; nine were smaller than 50 acres, though only one was as small as 20.

Land use on these tracts was not as intensive as might be expected, considering they occupied a locale so close to a major city and had a soil type practically the same as that settled by market gardeners just a short distance away. The thirty-one farms had a total of 1,270 acres enclosed for tillage, 56 percent of their gross area. These cultivated fields were used principally for raising grain hay, especially barley hay. Many of the operators, however, made a distinctive specialty of early potatoes on limited plots, probably in rotation with grain. Plantings totaling 359 acres were reported by twenty-two Ocean House Flat farms in 1880, with the plot size ranging from 4 to 40 acres. Irrigation was not developed to any extent on these tracts, and both the hay and potato crops were raised on the moisture of the winter rains.

The land use combination in this quarter of the county might best be represented by describing an individual farm such as that of Louis Anzenhofer, who rented 145 acres near the city reform school. In 1879 he cut 42 acres of grain hay (barley and rye), lifted spring potatoes from 30 acres, and left the balance of his land in pasture for maintaining a stock of sixteen cattle.

It may be recalled that von Thunen had accommodated market potatoes in the outer part of his first ring, reasoning that a bulky root crop, to be supplied in competition with small grains, would have to trim down freight costs by occupying a producing location close to market (von Thunen 1966, pp. 10, 137-139; Brinkmann 1935, pp. 80-81, 89). The potato fields curving south and east around San Francisco, just beyond a separate and distinct zone of high-value market gardening, would seem to conform rather neatly to the theory, but production here was limited in extent by the hilly terrain and in season by the droughty summer. Dividing the average San Francisco potato crop by city population and then comparing the result with Stuart's adjusted estimate of per-capita consumption in the United States, we can calculate that in the best of years no more than a tenth of San Francisco demand could have been satisfied by farms of the city and its immediate environs (Stuart 1923, p. 359).[5] However, given the favorable winter season, the short haul downtown would have enabled these city farms to place their crop to prime advantage in the early season or "truck" market. The growing of "dryland" potatoes for the early market would for some years remain an attractive venture on these underdeveloped tracts of the city's far corner.

The odd persistence of hay-making and potato-growing in the confines of San Francisco carried through the 1900 census year, when those crops occupied roughly the same acreage they had in 1880. After the end of the century, however, this mixed type of farming inevitably broke up, retreating in the face of rising land rents. Setting out pumps, pipes, and cisterns for irrigating meant a conversion to intensive cropping of high-class vegetables, rather than an elaboration of the established style of land use. The agricultural census of 1920 found no grain plantings, not a single grazing herd, and only one acre cut for hay in the entire county. The cultivated plots in this locale were turned over to market gardening; the potato, reduced to 66 acres in 1920, had presumably found a new place by this time in the truck-farm complex (San Francisco D.P.W., 1921).

Conclusion

Approaching the matter empirically and working through historical sources, we have pieced together on this far western shore a rather interesting real-life approximation of von Thunen's famous model of agricultural production around a central town. Market gardening commanded the arable patches of nearest access to the city, leaving the more extensive terraces on the far side of the San Miguel Hills to coarser productions. The dairy business pressed forward, meantime, to take its place on the immediate fringe of the city as a fully adapted species of factory enterprise. The locality of these different activities was adjusted to breaks in the natural landscape, but the arrangement viewed as a whole still conformed to the dominant influence of economic factors of location.

The chief point of emphasis is the overriding importance that economic considerations had in determining the agricultural

response to this land area, causing intensive commercial agriculture to flourish at the very spot on the California coast where environmental factors were most unfavorable. The natural conditions characterizing San Francisco, with its topography compounded largely of sands and sidehills and its climate borrowed in drafts from off the face of a cold sea, certainly would have precluded the specialized forms of agriculture described here and perhaps discouraged arable usage entirely. The relatively unadvanced state of handling and shipping facilities in that period, accenting the competitive advantages of a near-to-market location, gave rise to a contrary development. With the incentive of a large market right at hand, the challenge of providing food for the region's major city was answered to a considerable extent by farmers operating inside the city's own meager limits. For a time, San Francisco was boosted into the strange position of being, in many regards, one of the leading agricultural counties of the West.

Notes

[1] The 1880 Census determined San Francisco's population to be 233,959, which probably should be regarded as a minimum figure; the municipal government estimated a total of 247,000, while compilers of the city directory offered their own bullish estimate of 305,000. The Census Office counted 298,997 souls in 1890 and 342,742 in 1900.

[2] This pamphlet survives in the Bancroft Library collection, University of California at Berkeley. An article in *Pacific Rural Press* (11 December 1886, p. 483) indicates the pamphlet was distributed about November 1886. The first half a dozen pages, attributed to Professor E. J. Swift, seem to be fairly sober reporting, but the publication was sponsored by "interested persons" (apparently an association of San Mateo County dairymen) and the remaining pages compose a biased philippic against the whole practice of urban dairying, mixing all the verbose and imaginative arguments that commerical rivalry and the new-born germ theory of disease could muster. See "County vs. City Milk," *Pacific Rural Press* (24 July 1880, p. 56).

[3] A public health complaint was mentioned in *Pacific Rural Press* (21 June 1890, p. 624) relative to a Chinese company that had diverted a sewage outfall at the end of Franklin Street for the purpose of bringing water to commercial vegetable plots in the Golden Gate Valley. This odorous little project was supposedly unique in the city, though like the slop dairies it offers a memorable example of rural-urban interaction in the matter of city food supply.

[4] Market gardens just over the county line in Visitation Valley would add another 90 acres to this figure. Simply by dividing 1880 and 1890 population returns into reported market garden income, for both city and state, we can estimate that as much as one-third of the fresh vegetables sold in San Francisco in these years originated in or about the city limits.

[5] Stuart's figure of 140 pounds per capita was based on statistics of 1915-1919. San Francisco's average annual potato crop in the period 1880-1900 was 2.8 million pounds, lifted from a fairly constant acreage. Divided by a city population of 250,000, we get eleven pounds for each resident. This little farming belt continued beyond the city limits, following the Antioch soils into the small valleys of northern San Mateo County. The San Mateo contribution to city potato supply is less determinable, but allowing for a crop approximately equal to the city's own would make a suburban grand total of 20 pounds per capita. After deducting about one-third for culls, following Stuart, the suburban harvest would amount to less than 3 percent of state production.

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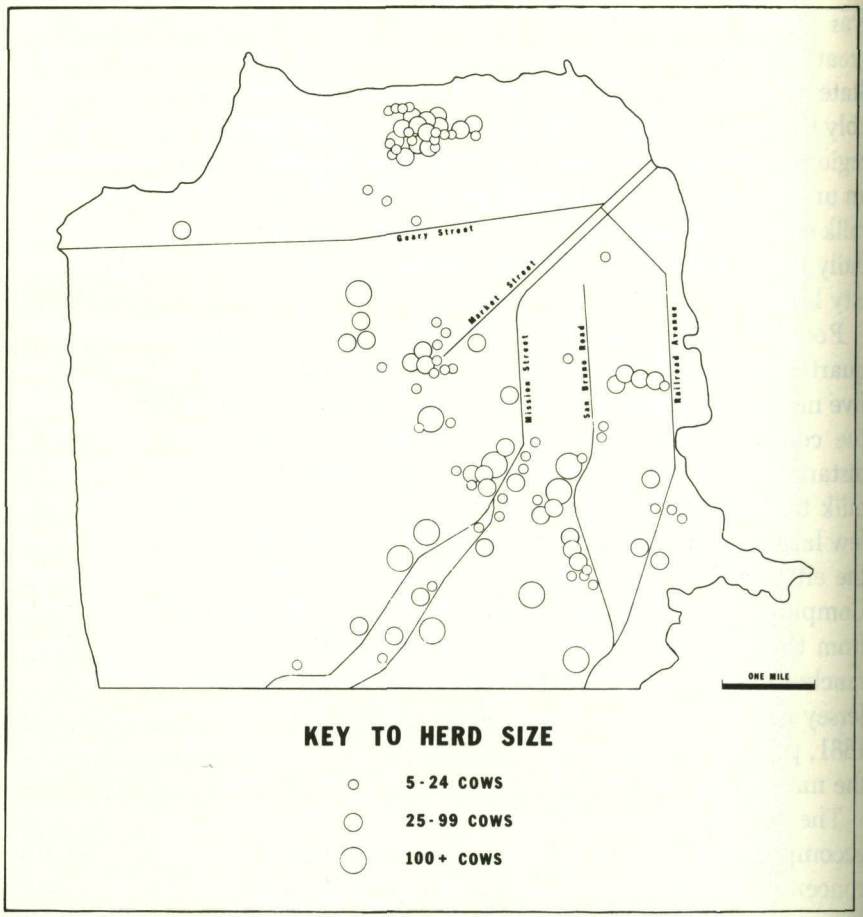

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